Michigan Educational Assessment Program

Mathematics
Grade 6
Scoring Guide for
Released Item #55
Juanita Swims
Fall 2006

MICHIGAN Department of Education

55 Juanita swam $\frac{1}{2}$ mile each day for 3 days in a row and then swam $\frac{3}{4}$ mile each day for the next 3 days.

Part A Write a mathematical expression that gives the number of miles that Juanita swam.

Part B Using your answer to **Part A**, calculate the number of miles that Juanita swam during the 6 days combined.

ANSWER THIS ITEM IN YOUR ANSWER DOCUMENT.

SHOW ALL YOUR WORK IN YOUR ANSWER DOCUMENT.

Mathematics Rubric for Juanita Swims

Scoring Rubric

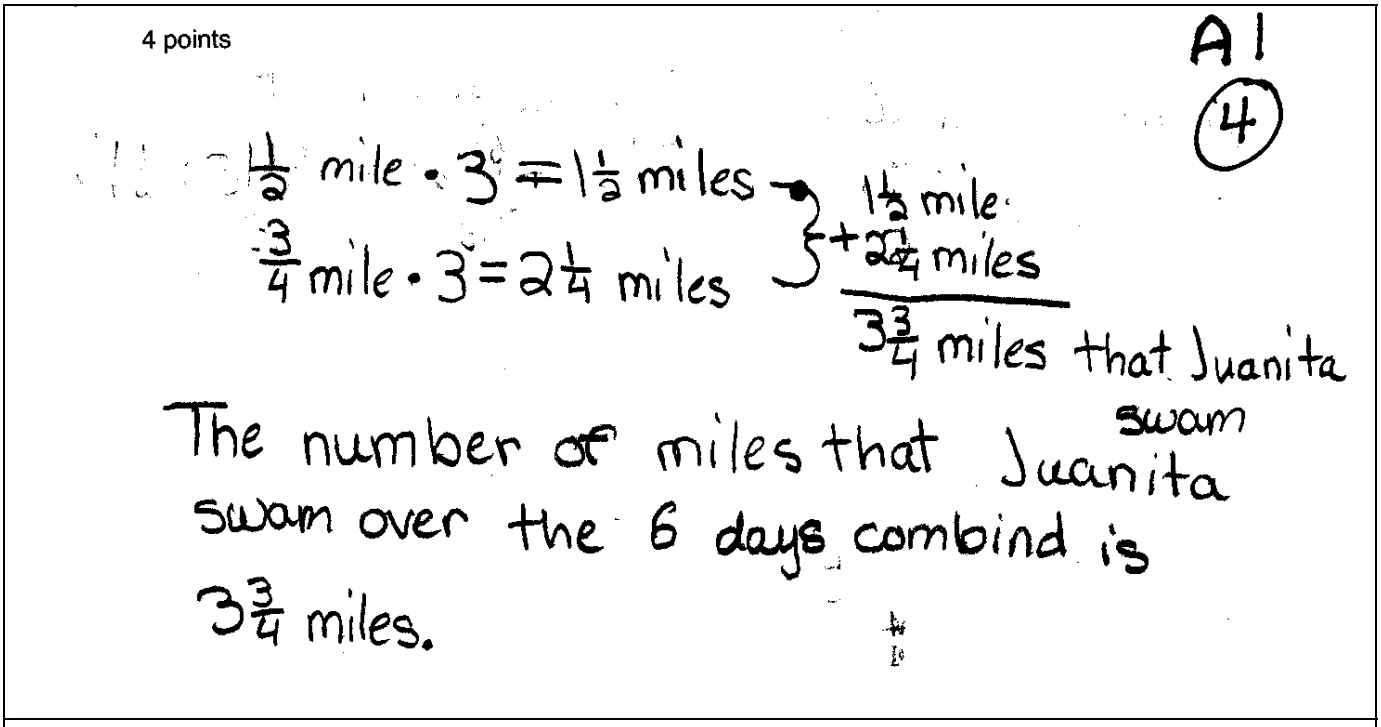
- The student provides evidence of combining the miles swam during the first three days. **(1 point)**
- The student provides evidence of combining the miles swam during the last three days. **(1 point)**
- The student provides evidence of combining the totals. **(1 point)**
- The student provides the correct solution (3 ¾, 15/4, or 3.75). **(1 point)**

Note 1: The student must show at least one correct mathematical expression to earn any of the first three points.

Note 2: The student may first combine the number of miles and then multiply by the number of days.

Note 3: The student may not receive a 4 if there is an incorrect computation on the page (e.g., a run-on equation).

Anchor Paper 1 – Score Point 4



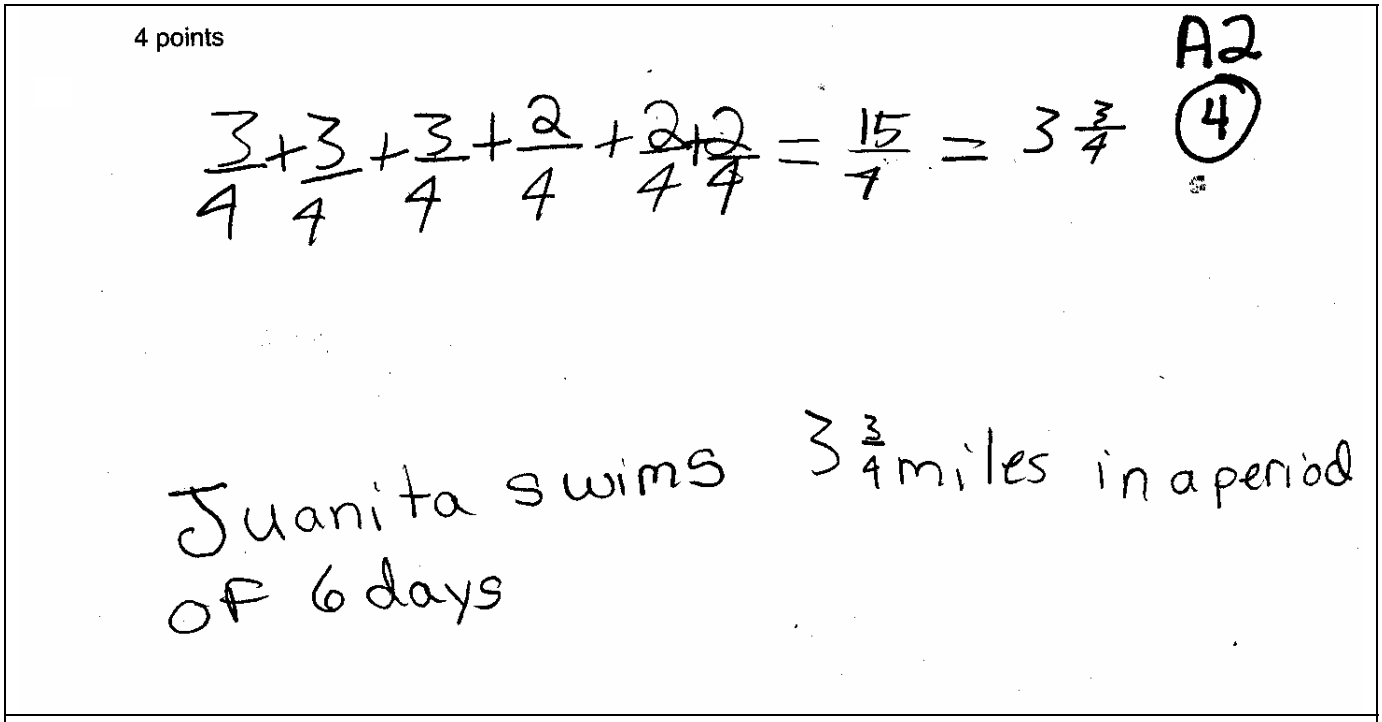
Anchor Paper 1
Score Point 4

The response demonstrates complete understanding of writing and using a mathematical expression.

- The student correctly combines the miles swam in the first three days by providing the expression *1/2 mile • 3.* **(1 point)**
- The student correctly combines the miles swam in the last three days by providing the expression *3/4 mile • 3.* **(1 point)**
- The student shows evidence of combining the totals in the mathematical expression *1 1/2 mile + 2 1/4 miles.* **(1 point)**
- The student calculates the correct solution of *3 3/4 miles.* **(1 point)**

The response earns **4 points**.

Anchor Paper 2 – Score Point 4

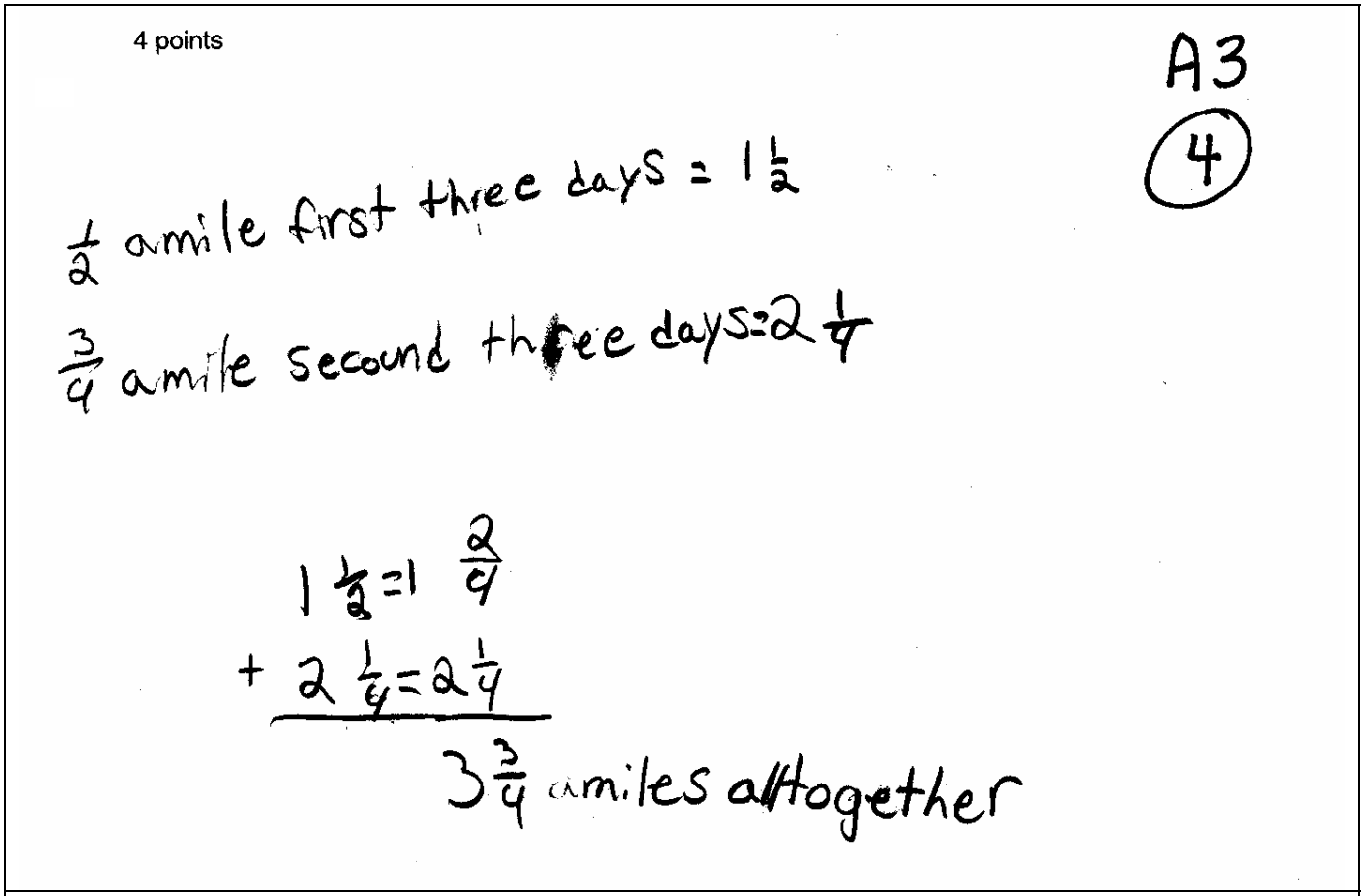


Anchor Paper 2
Score Point 4
The response demonstrates complete understanding of writing and using a mathematical expression.

- The student correctly combines the miles swam in the first three days and the miles swam in the last three days and combines all miles together in the one expression *3/4+3/4+3/4+2/4+2/4+2/4*. **(3 points)**
- The student calculates the correct solution of *3 3/4.* **(1 point)**

The response earns **4 points**.

Anchor Paper 3 – Score Point 4



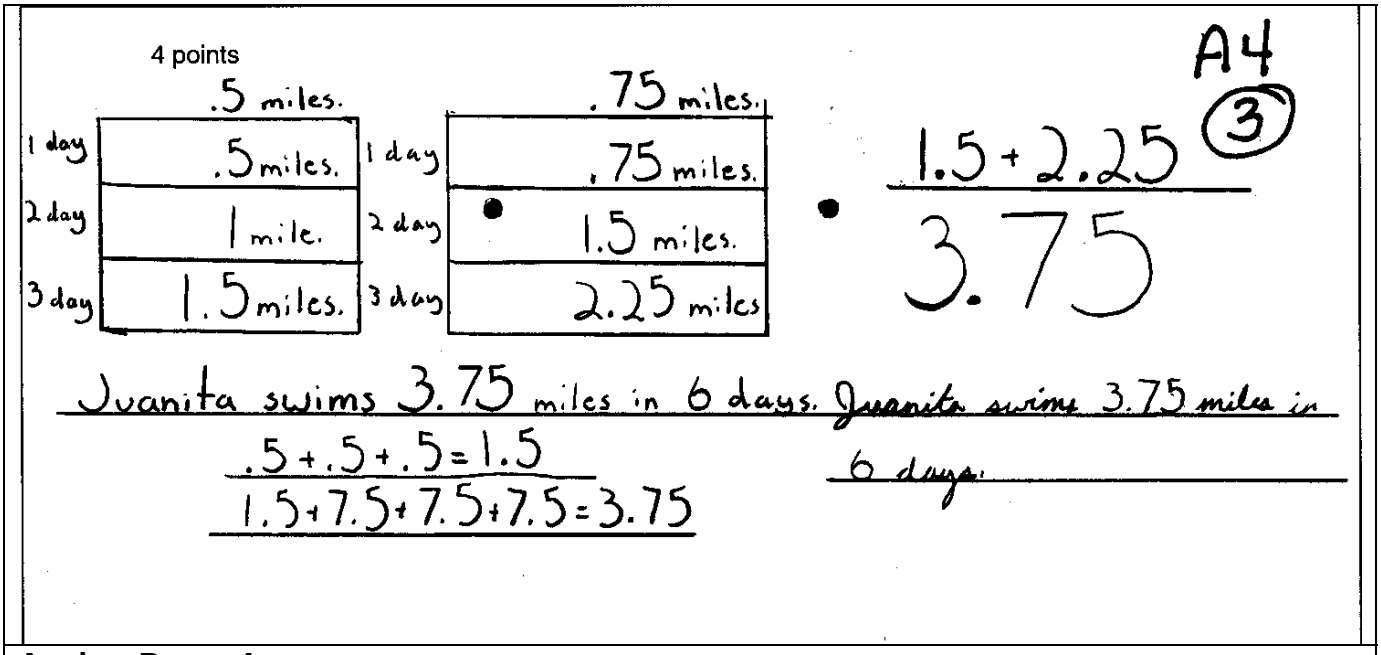
Anchor Paper 3
Score Point 4

The response demonstrates complete understanding of writing and using a mathematical expression.

- The student gives evidence of mentally combining the miles swam in the first three days by providing the correct sum of *1 1/2*. **(1 point)**
- The student gives evidence of mentally combining the miles swam in the last three days by providing the correct sum of *2 1/4*. **(1 point)**
- The student shows evidence of combining the totals, *1 1/2 + 2 1/4,* in a mathematical expression. **(1 point)**
- The student calculates the correct solution of *3 3/4 miles*. **(1 point)**

The response earns **4 points**.

Anchor Paper 4 – Score Point 3



Anchor Paper 4
Score Point 3

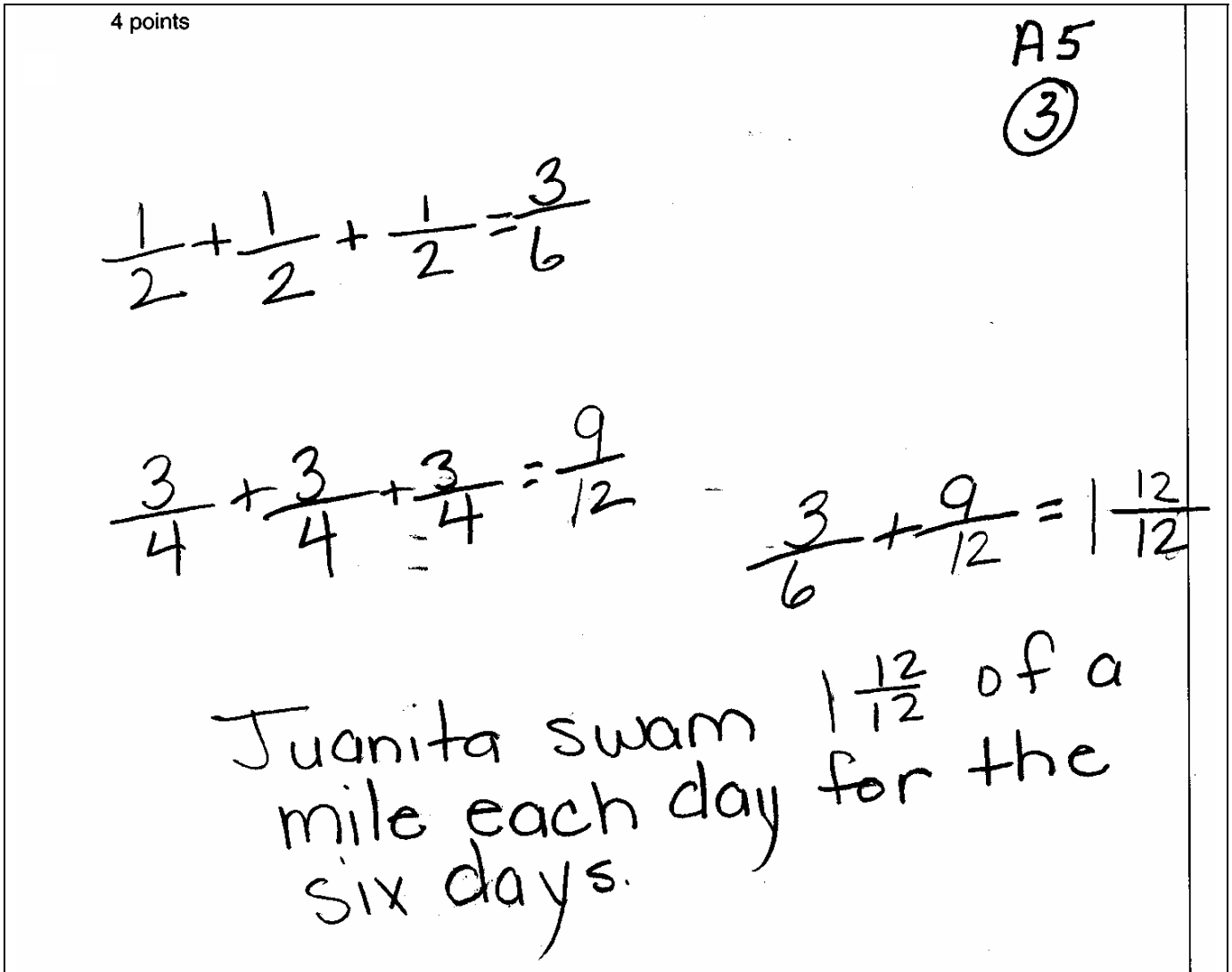
The response demonstrates understanding of writing and using a mathematical expression.

- The student correctly combines the miles swam in the first three days in the mathematical expression *.5+.5+.5 = 1.5*. Using decimal equivalents of distances is acceptable.**(1 point)**
- The student correctly combines the miles swam in the last three days *(2.25)*. **(1 point)**
- The student shows evidence of combining the totals, *1.5+ 2.25,* in a mathematical expression. **(1 point)**
- The student calculates the correct solution of *3.75 miles*. **(1 point)**

An incorrect computation, stating *1.5+7.5+7.5+7.5 = 3.75,* is given in the work space. This error results in the response scoring a 3. (See Note 3)

The response earns **3 points**.

Anchor Paper 5 – Score Point 3



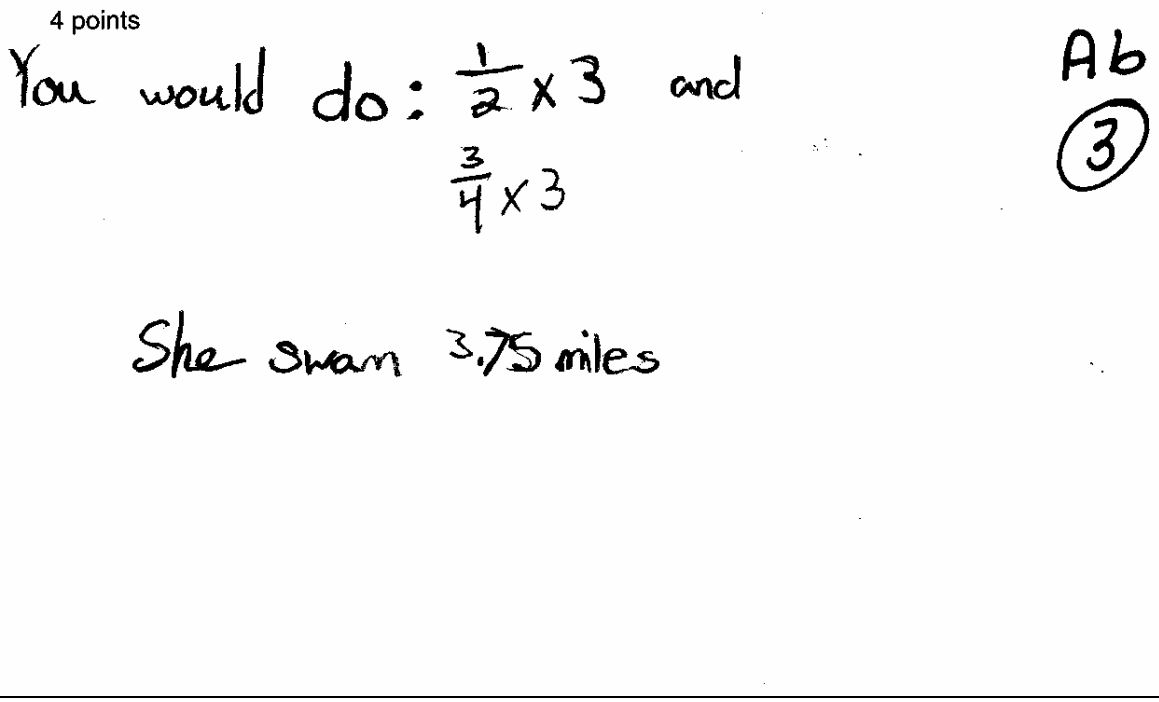
Anchor Paper 5
Score Point 3

The response demonstrates understanding of writing and using a mathematical expression.

- The student gives evidence of correctly combining the miles swam in the first three days in the mathematical expression *1/2+1/2+1/2*. **(1 point)**
- The student gives evidence of correctly combining the miles swam in the last three days in the mathematical expression *3/4+3/4+3/4*. **(1 point)**
- The student shows evidence of combining the totals, even though those totals are incorrect and result from incorrect math. The numbers represent what the student believes to be correct sub-totals, *3/6+9/12*. **(1 point)**
- The student calculates an incorrect solution of *1 12/12*. **(0 points)**

The response earns **3 points.**

Anchor Paper 6 – Score Point 3



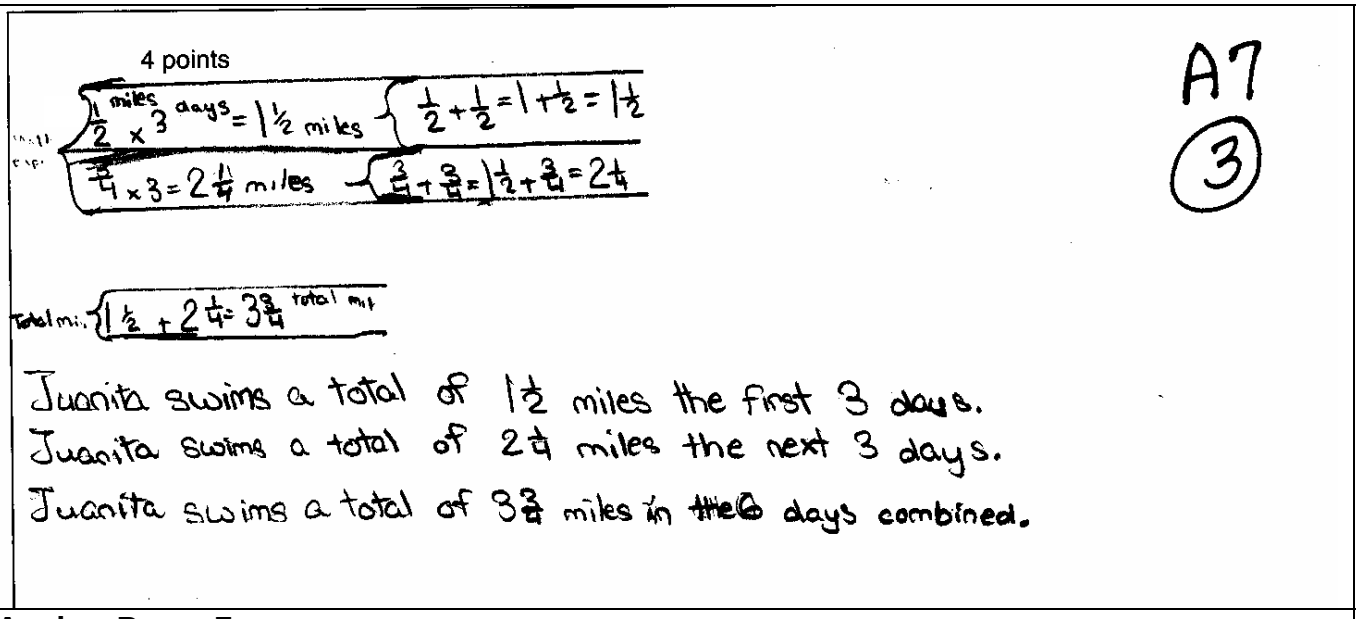
Anchor Paper 6
Score Point 3

The response demonstrates understanding of writing and using a mathematical expression.

- The student correctly combines the miles swam in the first three days in the mathematical expression *1/2 • 3*. **(1 point)**
- The student correctly combines the miles swam in the last three days in the mathematical expression *3/4 • 3*. **(1 point)**
- The student shows no evidence of combining the totals. The word *and* does not indicate an addition process. **(0 points)**
- The student indicates the correct solution of *3.75 miles*. **1 point)**

The response earns **3 points**.

Anchor Paper 7 – Score Point 3



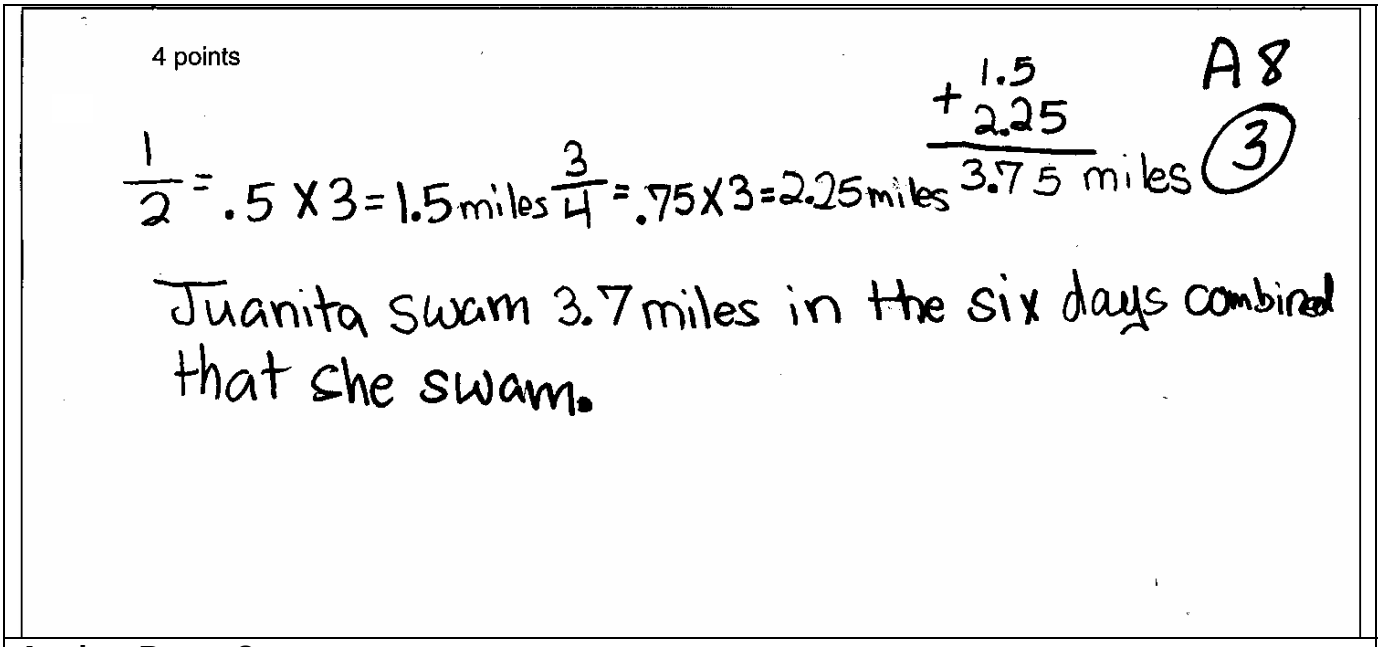
Anchor Paper 7
Score Point 3

The response demonstrates understanding of writing and using a mathematical expression.

- The student correctly combines the miles swam in the first three days in the mathematical expression *1/2 mile • 3 days*. **(1 point)**
- The student correctly combines the miles swam in the last three days in the mathematical expression *3/4 mile • 3 days*. **(1 point)**
- The student shows evidence of combining the totals in the mathematical expression *1 1/2 + 2 1/2*. **(1 point)**
- The student calculates the correct solution of *3 3/4 miles*. **(1 point)**

The computation includes 2 run-on equations (1/2+1/2 = 1+1/2 = 1 1/2 and 3/4+3/4 = 1 1/2 +3/4 = 2 1/4). The error results in the response scoring a 3. (See Note 3)
The response earns **3 points**.

Anchor Paper 8 – Score Point 3



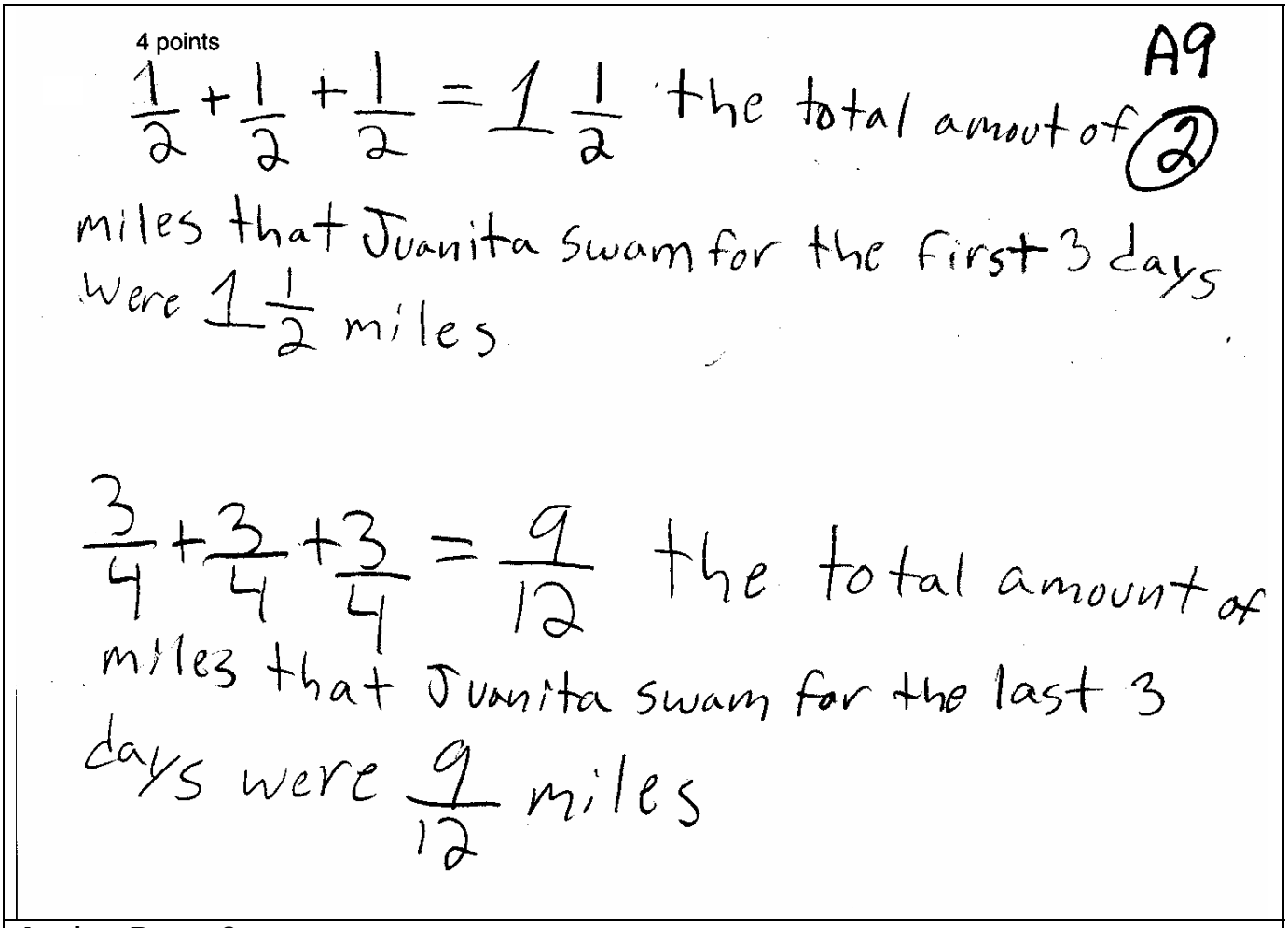
Anchor Paper 8
Score Point 3

The response demonstrates understanding of writing and using a mathematical expression.

- The student gives evidence of combining the miles swam in the first three days by providing the sum of *1.5* in a correct vertical equation. **(1 point)**
- The student gives evidence of combining the miles swam in the last three days by using the sum of *2.5* in a correct vertical equation. **(1 point)**
- The student gives evidence of combining the totals in the vertical mathematical expression *1.5+ 2.25*. **(1 point)**
- The student calculates the correct solution of *3.75 miles* and incorrectly rounds to *3.7*. The use of rounding is inappropriate for this prompt. **(0 points)**

The response includes two run-on equations, *1/2 = .5 ×3 = 1.5 miles* and *3/4 = .75 ×3 = 2.25,* which do not affect the points earned in a 3 level response. See Note 3.
The response scores **3 points**.

Anchor Paper 9 – Score Point 2



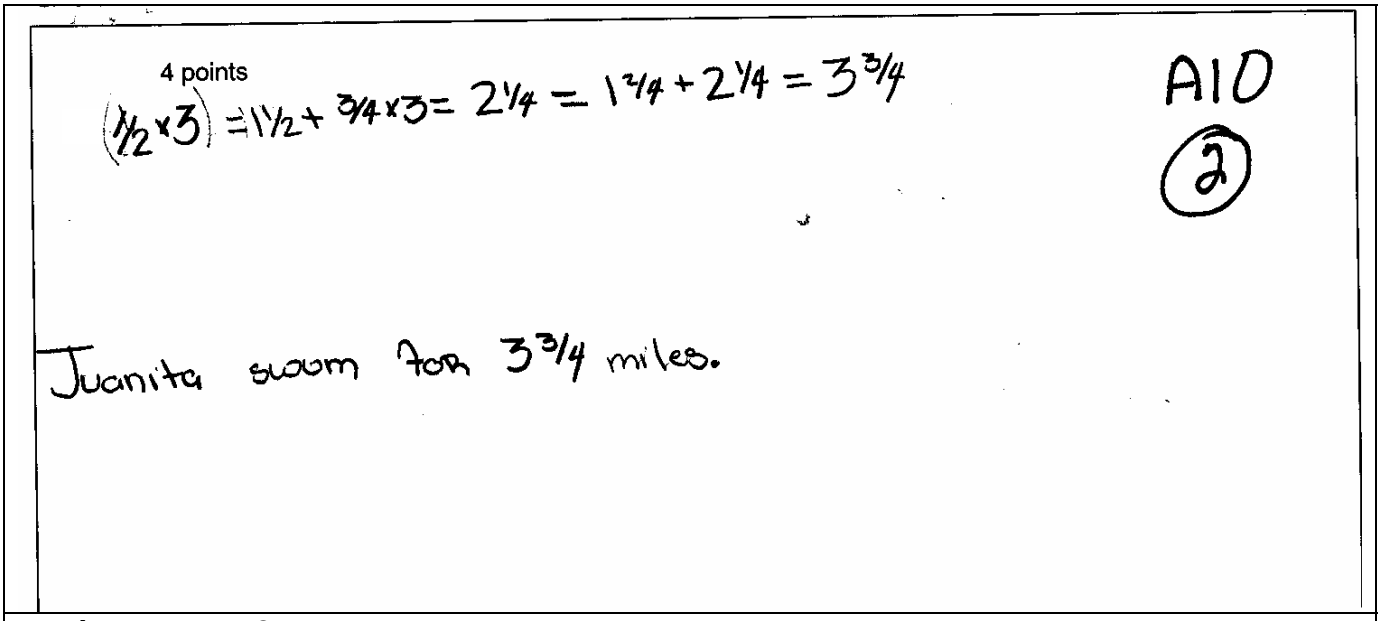
Anchor Paper 9
Score Point 2

The response demonstrates partial understanding of writing and using a mathematical expression.

- The student gives evidence of correctly combining the miles swam in the first three days in the mathematical expression *1/2+1/2+1/2*. **(1 point)**
- The student gives evidence of correctly combining the miles swam in the last three days in the mathematical expression *3/4+3/4+3/4*. **(1 point)**
- The student does not combine the totals. **(0 points)**
- The student does not calculate a solution. **(0 points)**

The response earns **2 points.**

Anchor Paper 10 – Score Point 2



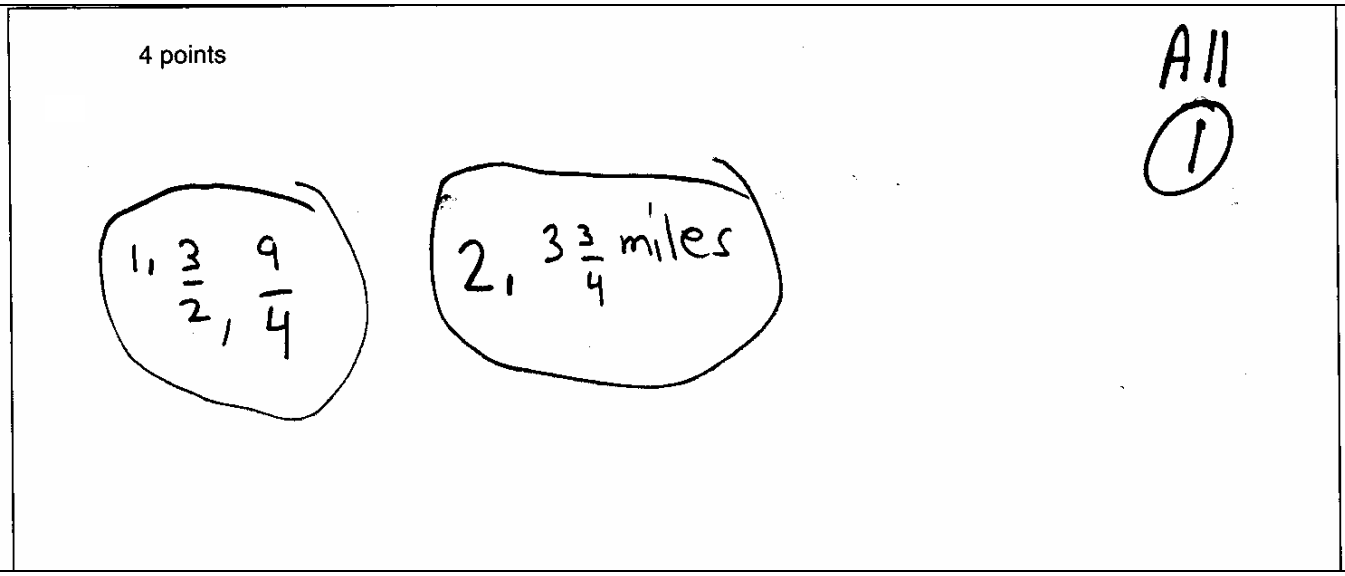
Anchor Paper 10
Score Point 2

The response demonstrates partial understanding of writing and using a mathematical expression.

- The student gives evidence of correctly combining the miles swam in the first three days in the mathematical expression *1/2×3.* **(1 point)**
- The student gives evidence of combining the miles swam in the last three days in a run-on equation. When the combination of miles is shown in a run-on equation, the expression up to the first equal sign is the only part considered correct. In this response, only *1/2 × 3* (the first 3 days) is correct. **(0 points)**
- The student does combine the totals; however, because the combination is part of a run-on equation, it is not considered correct. **(0 points)**
- The student calculates a correct solution of *3 3/4 miles*. **(1 point)**

The response earns **2 points.**

Anchor Paper 11 – Score Point 1

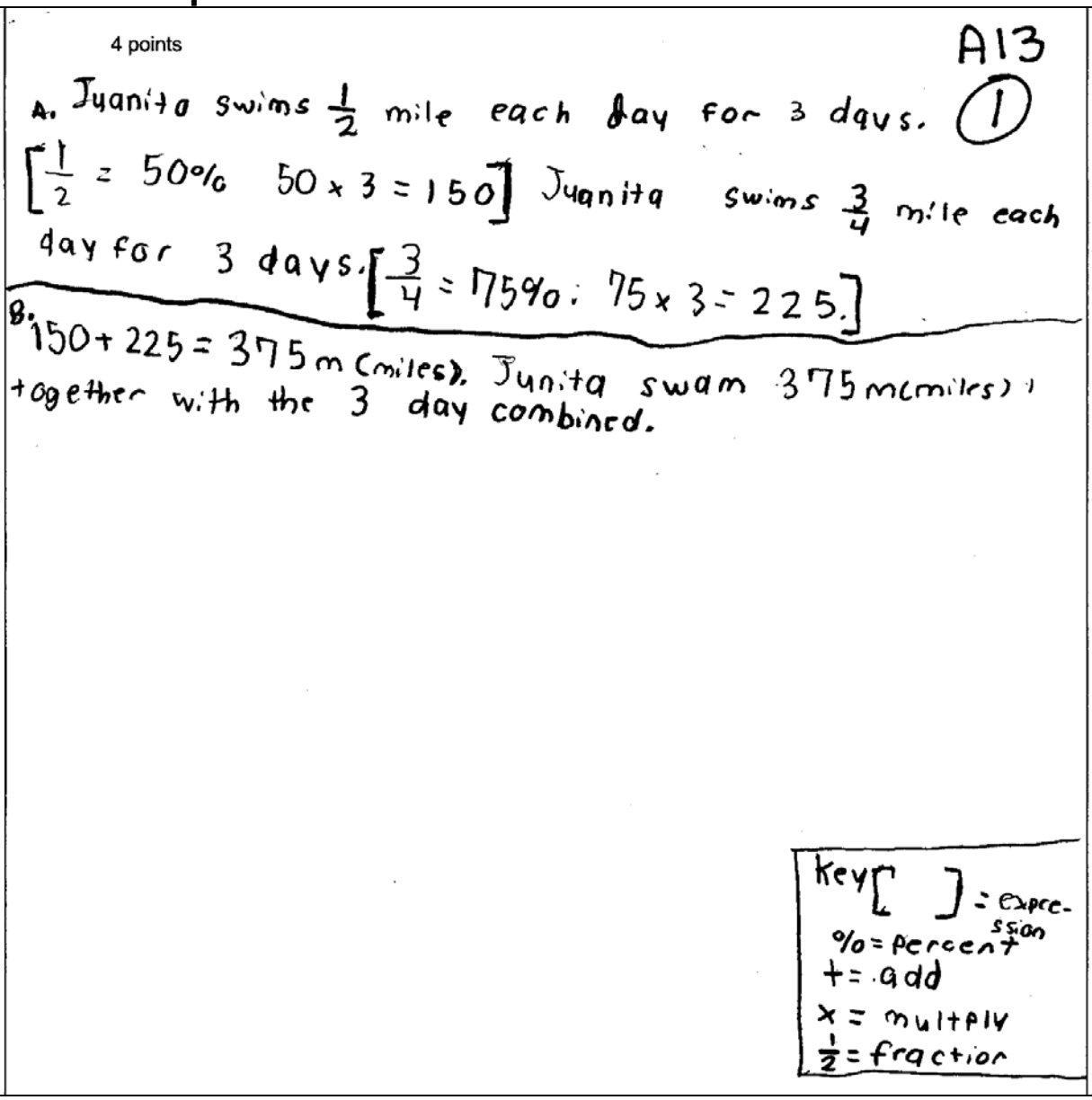


Anchor Paper 11
Score Point 1
The response demonstrates some understanding of writing and using a mathematical expression.

- The student gives no evidence of correctly combining the miles swam in the first three days. **(0 points)**
- The student gives no evidence of combining the miles swam in the last three days. **(0 points)**
- The student gives no evidence of combining the totals. **(0 points)**
- The student shows a correct solution of *3 3/4 miles*. **(1 point)**

The response earns **1 point.**

Anchor Paper 12 – Score Point 1



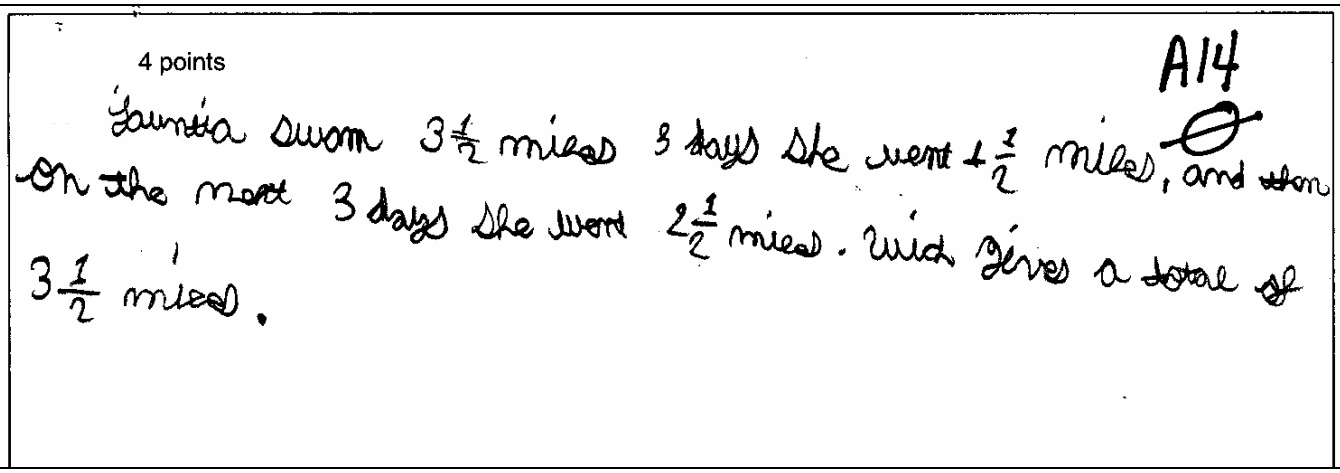
Anchor Paper 12
Score Point 1

The response demonstrates some understanding of writing and using a mathematical expression.

- The student does not give evidence of correctly combining the miles swam in the first three days. **(0 points)**
- The student does not give evidence of correctly combining the miles swam in the last three days. **(0 points)**
- The student shows evidence of combining the totals in a mathematical expression, even though those totals are incorrect and result from incorrect math. The numbers represent what the student believes to be correct sub-totals of *150 + 375*. **(1 point)**
- The student calculates an incorrect solution of *375 miles* **(0 points)**

The response earns **1 point.**

Anchor Paper 13 – Score Point 0

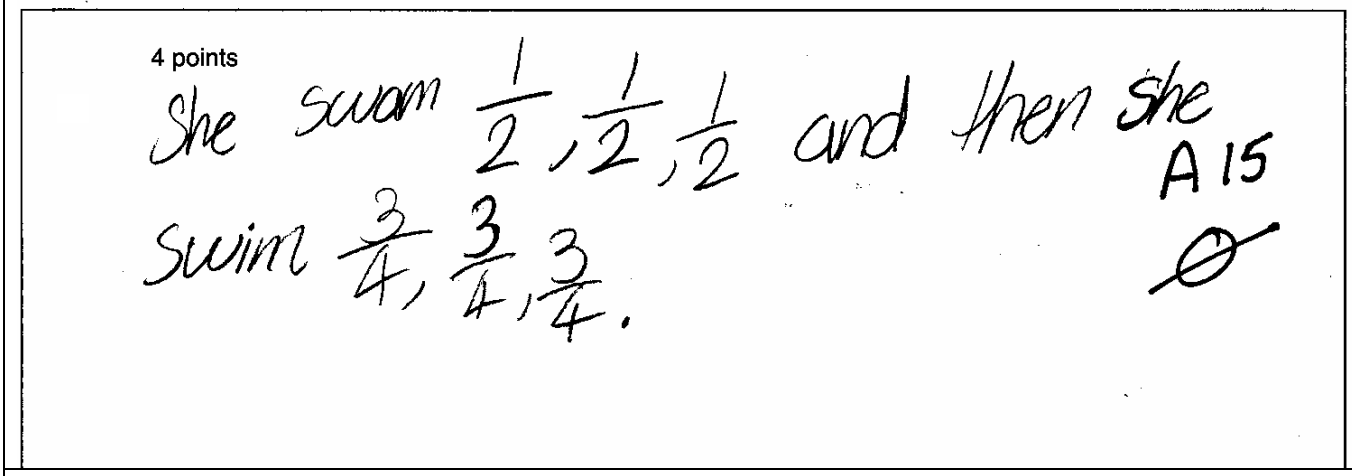


Anchor Paper 13
Score Point 0

The response shows very little understanding of writing and using a mathematical expression. There is no **mathematical expression** in the response; therefore, no credit can be earned for the first three bullets. (See Note 1) The solution provided is incorrect.

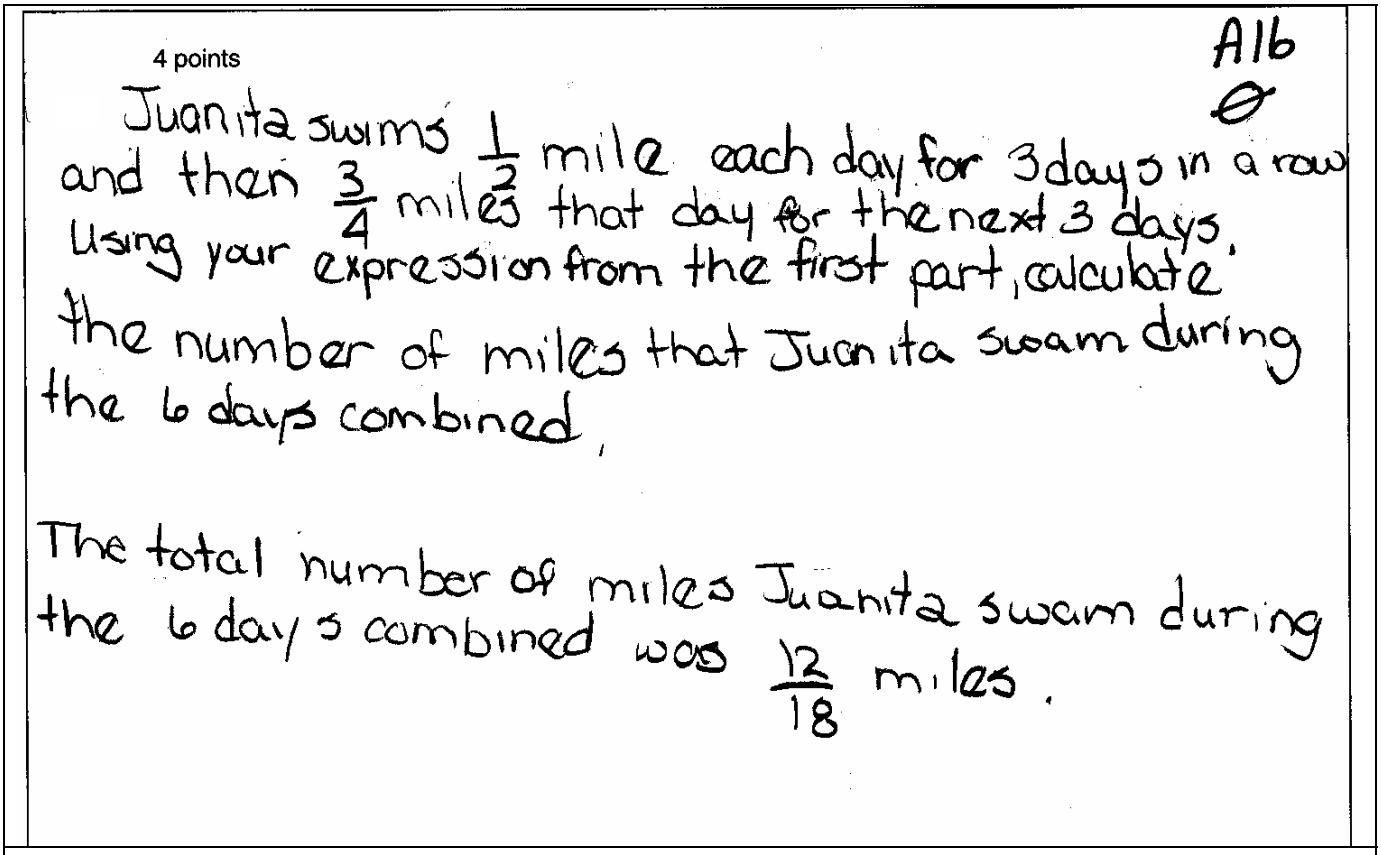
The response earns **0 points**.

Anchor Paper 14 – Score Point 0



Anchor Paper 14
Score Point 0
The response shows very little understanding of writing and using a mathematical expression.
There is no **mathematical expression** in the response; and no solution is given.
The response earns **0 points**.

Anchor Paper 15 – Score Point 0



Anchor Paper 15
Score Point 0
The response shows very little understanding of writing and using a mathematical expression. There is no **mathematical expression** in the response; and an incorrect solution of *12/18* is given.
The response earns **0 points**.